

CLAIMS

1. Apparatus for producing a panoramic image of a scene, comprising:

an image capture device, which is adapted to capture a plurality of sub-images of the scene at a respective plurality of orientations of the device; and

a direction indicator, which is coupled to the image capture device so as to determine the orientation of the device and to indicate the orientations at which the sub-images should be captured so that the plurality of sub-images can be stitched together to form the panoramic image of the scene.

2. Apparatus according to claim 1, wherein the image capture device comprises a memory wherein the plurality of sub-images are stored.

3. Apparatus according to claim 2, wherein the memory comprises a volatile memory.

4. Apparatus according to claim 2, wherein the memory comprises a non-volatile memory.

5. Apparatus according to claim 1, wherein the image capture device comprises a central processing unit (CPU) which stitches the plurality of sub-images together to form the panoramic image of the scene.

6. Apparatus according to claim 5, wherein the direction indicator comprises one or more signal generators which transmit the plurality of orientations to the CPU, and wherein the CPU stitches the plurality of sub-images together responsive to the received plurality of orientations.

7. Apparatus according to claim 5, wherein the direction indicator comprises one or more signal generators which transmit the plurality of orientations

to the CPU, and wherein the CPU operates the image capture device so as to capture the plurality of sub-images responsive to the received plurality of orientations.

8. Apparatus according to claim 1, wherein the direction indicator comprises:

a first direction indicator section which is substantially fixedly coupled to the image capture device, so that the plurality of orientations of the device correspond to a respective plurality of orientations of the first section; and

a second direction indicator section which is substantially invariant in orientation, so that comparison of the orientation of the first section with the orientation of the second section provides the orientation of the device.

9. Apparatus according to claim 8, wherein the second direction indicator section comprises an asymmetrical mass which maintains an orientation of the second direction indicator section substantially fixed relative to the Earth's gravitational field.

10. Apparatus according to claim 8, wherein the second direction indicator section comprises a permanent magnet which maintains an orientation of the second direction indicator section substantially fixed relative to the Earth's magnetic field.

11. Apparatus according to claim 8, wherein the image capture device comprises a predetermined field-of-view, and wherein the plurality of sub-images comprise a predetermined overlap between adjacent sub-images, and wherein the second direction indicator section comprises a respective plurality of markings, responsive to the

field-of-view and the overlap, which indicate the plurality of orientations.

12. Apparatus according to claim 11, wherein the image capture device captures the scene by being rotated about a substantially vertical axis, and wherein the field-of-view of the device comprises a predetermined horizontal field-of-view, and wherein the plurality of markings comprise a respective plurality of longitudinal markings.

13. Apparatus according to claim 11, wherein the image capture device captures the scene by being rotated about a substantially horizontal axis, and wherein the field-of-view of the device comprises a predetermined vertical field-of-view, and wherein the plurality of markings comprise a respective plurality of latitudinal markings.

14. Apparatus according to claim 1, wherein the scene comprises a view formed by rotating about an axis by an angle substantially equal to 360° .

15. Apparatus according to claim 1, wherein the scene comprises a view formed by rotating about an axis by an angle less than 360° .

16. A method for producing a panoramic image of a scene, comprising:

coupling a direction indicator to an image capture device so as to determine orientation coordinates of the device; and

generating a plurality of sub-images of the scene at a respective plurality of orientation coordinates of the image capture device indicated by the direction indicator, so that the plurality of sub-images can be stitched together to form the panoramic image of the scene.

17. A method according to claim 16, wherein the image capture device comprises a memory, and wherein generating the plurality of sub-images comprises storing the plurality of sub-images in the memory.

18. A method according to claim 16, and comprising providing a central processing unit (CPU), wherein generating the plurality of sub-images comprises operating the CPU so as to stitch the plurality of sub-images together to form the panoramic image of the scene.

19. A method according to claim 18, and comprising providing one or more signal generators which transmit the plurality of orientations to the CPU, wherein stitching the plurality of sub-images together comprises stitching the plurality of sub-images together responsive to the transmitted plurality of orientations.

20. A method according to claim 18, and comprising providing one or more signal generators which transmit the plurality of orientations to the CPU, wherein generating the plurality of sub-images comprises generating the plurality of sub-images together responsive to the transmitted plurality of orientations.

21. A method according to claim 16, wherein coupling the direction indicator to the image capture device comprises maintaining an orientation of a section of the direction indicator substantially fixed relative to the Earth's gravitational field.

22. A method according to claim 16, wherein coupling the direction indicator to the image capture device comprises maintaining an orientation of a section of the direction indicator substantially fixed relative to the Earth's magnetic field.

23. A method according to claim 16, wherein generating the plurality of sub-images comprises generating the sub-images responsive to a predetermined field-of-view of the image capture device and to a predetermined overlap between adjacent sub-images.

24. A method according to claim 23, wherein generating the plurality of sub-images comprises rotating the image capture device about a substantially vertical axis, and wherein the field-of-view of the device comprises a predetermined horizontal field-of-view.

25. A method according to claim 23, wherein generating the plurality of sub-images comprises rotating the image capture device about a substantially horizontal axis, and wherein the field-of-view of the device comprises a predetermined vertical field-of-view.

26. A method according to claim 16, wherein generating the plurality of sub-images comprises rotating the image capture device about an axis by an angle substantially equal to 360°.

27. A method according to claim 16, wherein generating the plurality of sub-images comprises rotating the image capture device about an axis by an angle substantially less than 360°.

28. A method for producing a panoramic image of a scene, comprising:

pointing an image capture device in an initial direction at the scene;

displaying an initial sub-image on a screen responsive to the initial direction;

capturing the initial sub-image of the scene;

translating the initial sub-image a predetermined distance on the screen to form a translated sub-image;

moving the image capture device to point in a subsequent direction so as to align a subsequent sub-image of the scene, displayed on the screen responsive to the subsequent direction, with the translated sub-image;

capturing the subsequent sub-image of the scene; and

stitching the initial sub-image and the subsequent sub-image together to form the panoramic image of the scene.

29. A method according to claim 28, and comprising:

translating the subsequent sub-image the predetermined distance on the screen to form a second translated sub-image;

moving the image capture device to point in a second subsequent direction so as to align a second subsequent sub-image of the scene, displayed on the screen responsive to the second subsequent direction, with the second translated sub-image;

capturing the second subsequent sub-image; and

stitching the initial sub-image and the subsequent sub-image and the second subsequent sub-image together to form the panoramic image of the scene.

30. Apparatus for producing a panoramic image of a scene, comprising:

an image capture device which is pointed in an initial direction at the scene;

a screen which displays an initial sub-image responsive to the initial direction; and

a central processing unit (CPU) which is adapted to capture the initial sub-image of the scene, and to translate the initial sub-image a predetermined distance on the screen to form a translated sub-image,

wherein the image capture device is moved to point in a subsequent direction so as to align a subsequent sub-image of the scene, displayed on the screen

responsive to the subsequent direction, with the translated sub-image, and wherein the CPU is adapted to capture the subsequent sub-image of the scene and to stitch the initial sub-image and the subsequent sub-image together to form the panoramic image of the scene.